F ENT COOPERATION TREA

From	the	INT	ERN	ATIO	NAL	BUR	EAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT

2011 South Clark Place Room

CP2/5C24

Arlington, VA 22202

ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 04 April 2001 (04.04.01)

International application No. PCT/EP00/06792

International filing date (day/month/year) 27 June 2000 (27.06.00)

Applicant's or agent's file reference SANSYL001/MB

Priority date (day/month/year) 28 June 1999 (28.06.99)

Applicant

ALAUX, Gérard et al

, within the time limit under
, within the time limit under

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland

Authorized officer

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

14

(PCT Article 36 and Rule 70)

Applica	ant's o	r age	nt's file reference		See Notification of Transmittal of International		
SANS	SYL0	01/N	MB	FOR FURTHER ACTION	Preliminary Examination Report (Form PCT/IPEA/416)		
Interna	tional	appli	cation No.	International filing date (day/month	th/year) Priority date (day/month/year)		
PCT/I	EP00)/067	792	27/06/2000	28/06/1999		
Interna A61K		Pate	nt Classification (IPC) or na	tional classification and IPC			
Applica	ant						
SANC	OFI-S	YN	THELABO				
1. Ti ar	his in	terna	ational preliminary exami smitted to the applicant a	nation report has been prepared according to Article 36.	d by this International Preliminary Examining Authority		
2. TI	his R	EPO	RT consists of a total of	5 sheets, including this cover s	sheet.		
Ø	be	en a	mended and are the bas	d by ANNEXES, i.e. sheets of the sis for this report and/or sheets on To of the Administrative Instructi	he description, claims and/or drawings which have containing rectifications made before this Authority tions under the PCT).		
ТІ	hese	anne	exes consist of a total of	2 sheets.			
3. TI	his re	port	contains indications rela	ting to the following items:			
	ı	\boxtimes	Basis of the report				
	II		Priority				
	Ш		<u> </u>	pinion with regard to novelty, in	ventive step and industrial applicability		
	IV						
	V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement						
	VI		Certain documents cité				
	VII	\boxtimes	Certain defects in the in	nternational application			
	VIII	×	Certain observations or	n the international application			
				A-17-			
Date of	f subn	nissio	n of the demand	. Date of	f completion of this report		
25/01	/200	1,		. 18.09.2	2001		
			address of the internationa ning authority:	al Authoria	ized officer		
	0)))	D-80	pean Patent Office 298 Munich		gaard, A		
	Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 Telephone No. +49 89 2399 8644						

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/06792

I. Basis	f th	report
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		•					
1.	the and	receiving Office in a	response to an invitatio	al application (Replacement sheets which have been furnished to in under Article 14 are referred to in this report as "originally filed" do not contain amendments (Rules 70.16 and 70.17)):			
	1-19	e	as originally filed				
	Cla	ims, No.:					
	9-14 23-2	4 , 22 (part), 26	as originally filed				
		15-21, part)	with telefax of	05/09/2001			
	Dra	wings, sheets:					
	1/4-	4/4	as originally filed				
2.				marked above were available or furnished to this Authority in the n was filed, unless otherwise indicated under this item.			
	The	se elements were a	available or furnished to	o this Authority in the following language: , which is:			
		the language of a	translation furnished fo	r the purposes of the international search (under Rule 23.1(b)).			
	☐ the language of publication of the international application (under Rule 48.3(b)).						
		the language of a 55.2 and/or 55.3).		r the purposes of international preliminary examination (under Rule			
3.				acid sequence disclosed in the international application, the ried out on the basis of the sequence listing:			
		contained in the in	ternational application	in written form.			
		filed together with	the international applic	ation in computer readable form.			
		furnished subsequ	ently to this Authority in	n written form.			
		furnished subsequ	ently to this Authority i	n computer readable form.			
			it the subsequently furn	nished written sequence listing does not go beyond the disclosure in oeen furnished.			
		The statement that listing has been full		ded in computer readable form is identical to the written sequence			

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/06792

4.	The	amendments have re-	sulted in th	ne cancel	ellation of:
		the description,	pages:		
		the claims,	Nos.:		
		the drawings,	sheets:		
5.					some of) the amendments had not been made, since they have been as filed (Rule 70.2(c)):
		(Any replacement she report.)	eet contain	ning such	n amendments must be referred to under item 1 and annexed to this
6.	Add	litional observations, if	necessary	y:	
٧.		soned statement und tions and explanation			vith regard to novelty, inventive step or industrial applicability; ch statement
1.	Stat	tement			
	Nov	relty (N)	Yes: No:	Claims Claims	1-26
	Inve	entive step (IS)	Yes: No:	Claims Claims	1-26
	Indu	ustrial applicability (IA)	Yes: No:	Claims Claims	1-26

2. Citations and explanations see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted: see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made: see separate sheet

EXAMINATION REPORT - SEPARATE SHEET

R S ction V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents: 1.

D1: WO-A-96/41617 D2: EP-A-0 908 177

D1 discloses (see the abstract and claims 1 and 6) pharmaceutical compositions comprising an active ingredient (e.g. sleep-inducing and tranquillising substances such as diazepam) with release of the latter at successive times and at different rates, comprising a first fraction for immediate release and a second fraction for delayed/modulated/slow release. In claims 26 and 32 of D1 double-layered tablets and capsules comprising two different granulates (one granulate for immediate release and one granulate for delayed and programmed release) are disclosed.

D2 discloses (see claim 1) pharmaceutical compositions comprising bromazepan having a first fraction for quick release and a second fraction for slow release.

The subject-matter of claim 1 is not considered novel (Art. 33(2) PCT) over D1 2. and D2, each document taken separately (see above under item 1).

It is here pointed out that the documents D1 and D2 do not mention a timed dual release in which the release rate is zero or is very low during a fixed time and then the whole of the drug comprised in the dosage form is released rapidly as in the present application. However, the terms "immediate", "delayed" and "fixed time" in claim 1 are so vague and unclear that a clear distinction over D1 and D2 is not possible. In present claim 1 it appears necessary to define the dual release more exactly to obtain a clear distinction over D1 and D2; e.g. by specifying the "immediate release", the "fixed time" and the "delayed release pulse" as in dependent claims 2, 3 and 6.



EXAMINATION REPORT - SEPARATE SHEET

- Claims, that are not novel, cannot involve an inventive step (Art. 33(3) PCT). 3.
 - However, it appears that if the applicant overcomes the above-mentioned novelty objection, then an inventive step can be acknowledged since D1 and D2 mainly relate to a combination of an immediate release and a sustained release over a prolonged time whereas the present application relates to obtaining two specific release pulses, the first being immediate (lasting up to 30 minutes) and the second release only after a fixed time (between 50 and 200 minutes) and being rapid (between 30 and 200 minutes).
- A positive international preliminary examination report for the subject-matter of the 4. dependent claims 2-26 can only be established when they refer to an independent claim which meets the requirements of the PCT.

Re Section VII

Certain defects in the international application

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.

Re Section VIII

Certain observations on the international application

- The term "short-acting" used in claims 1 and 8 is vague and unclear and leaves 1. the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT).
 - It is pointed out that no proof has been provided that the hypnotic "bromazepam" according to D2 is not short-acting.

15. A pharmaceutical composition according to any one of claims 10 to 13, characterised in that the delayed release particles or tablets are coated with a mixture containing at least one ammonio methacrylate copolymer and the core contains a zwitterionic surfactant.

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- 16. A pharmaceutical composition according to claim 14, characterised in that the cationic surfactant is chosen among trimethyl-dimyristoyl-ammonium propionate, dimethyl-dioctadecyl-ammonium bromide, trimethyl-cetyl-ammonium bromide, dimethyl-didodecyl-ammonium bromide, benzalkonium chloride, cetylpyridinium chloride and cetrimide.
- 17. A pharmaceutical composition according to claim 15, characterised in that the zwitterionic surfactants are chosen among N-alkylbetaines, C-alkylbetaines, N-alkylamidobetaines, N-alkylglycines, phosphatidylcholines and lecithines.

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- 18. A pharmaceutical composition according to claim 16, characterised in that the zwitterionic surfactant is cocamidopropylbetain.
- 19. A pharmaceutical composition according to claim 8, characterised in that the immediate release entity and the prolonged release entity are administered simultaneously but separately.
 - 20. A pharmaceutical composition according to anyone of claims 1 to 18, characterised in that the prolonged release entity comprises a pharmaceutical acceptable organic acid which can be chosen among tartaric, malic, fumaric, lactic, citric, adipic or succinic acid and their acid salts, in the form of racemates or isomers.
- 21. A pharmaceutical composition according to any one of claims 1 to 20, characterised in that the short acting hypnotic belongs to the therapeutic classes of benzodiazepines, cyclopyrrolones, pyrazolopyrimidines, phenotiazines or imidazopyridines.
- 22. A pharmaceutical composition according to claim 21, characterised in that the short acting hypnotic is chosen among triazolam, temazepam, brotizolam,

Claims

1. A pharmaceutical composition comprising a short acting hypnotic or a salt thereof characterised in that it consists of a timed dual release dosage form adapted to release the short acting hypnotic over a predetermined time period, according to an *in vitro* profile of dissolution when measured in a rotating paddle apparatus of the European pharmacopoeia in aqueous buffer at 37°C, comprising two release pulses, the first being immediate and the second being delayed by a fixed time after the administration.

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- 2. A pharmaceutical composition according to claim 1, characterised in that the first pulse has a maximum duration of 30 minutes.
- 3. A pharmaceutical composition according to claim 1 or 2, characterised in that the fixed time is between 50 and 200 minutes.
 - 4. A pharmaceutical composition according to claim 3, characterised in that the fixed time is between 60 and 150 minutes.
 - 5. A pharmaceutical composition according to any one of claims 1 to 4, characterised in that 40 to 70% of the total amount of the short acting hypnotic is released during the immediate release pulse.
 - 6. A pharmaceutical composition according to any one of claims 1 to 5, characterised in that the delayed release pulse lasts between 30 and 200 minutes.
 - 7. A pharmaceutical composition according to any one of claims 1 to 6, characterised in that the time for release of 85% of the total amount of the short acting hypnotic is between 2 and 6 hours.

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8. A pharmaceutical composition comprising a short acting hypnotic or a salt thereof characterised in that it comprises two kinds of pharmaceutical entities: one immediate release entity and one delayed release entity.



(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 4 January 2001 (04.01.2001)

PCT

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- (51) International Patent Classification7: A61K 9/50, 9/00
- (21) International Application Number: PCT/EP00/06792
- (22) International Filing Date: 27 June 2000 (27.06.2000)
- (25) Filing Language:

English

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(30) Priority Data: 99401605.3

28 June 1999 (28.06.1999) EP

- (71) Applicant (for all designated States except US): SANOFI-SYNTHELABO [FR/FR]; 174, avenue de France, F-75013 Paris (FR).
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- (74) Agent: THOURET-LEMAITRE, Elisabeth; Sanofi-Synthelabo, 174, avenue de France, F-75013 Paris (FR).

- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

- With international search report.
- Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.
- (88) Date of publication of the international search report: 1 March 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.





(57) Abstract: The present invention relates to timed dual release dosage forms of short acting hypnotics or salts thereof adapted to release the short acting hypnotic over a predetermined time period, according to a profile of dissolution characterised in that it comprises two release pulses, the first being immediate (lasting up to 30 minutes) and the second being delayed by a fixed time (this fixed time being between 50 and 200 minutes).

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K9/50 A61K9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) $IPC - 7 \qquad A61K$

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal, CHEM ABS Data

C. DOCUM	ENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Х	WO 96 41617 A (APPLIED PHARMA RESEARCH) 27 December 1996 (1996-12-27) figure 4 claims 1,2,6,26,30-33	8-13,19, 21
X	EP 0 908 177 A (GOLD, OSCAR) 14 April 1999 (1999-04-14) claims 1,17,21	8-13,19, 21
Α	WO 97 23219 A (ETHYPHARM) 3 July 1997 (1997-07-03) the whole document	1-26
Α	GB 2 185 887 A (FARMITALIA) 5 August 1987 (1987-08-05) the whole document	1-26
	-/	

Further documents are listed in the continuation of box C.	Patent family members are listed in annex.
 Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed 	 *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family
Date of the actual completion of the international search 11 December 2000	Date of mailing of the international search report 18/12/2000
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax: (+31-70) 340-3016	Authorized officer Ventura Amat, A

Category °	ation) DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Jacegory	Chairm of Goodinerit, with indication, where appropriate, of the relevant passages	newant to claim No.
A	FR 2 656 303 A (PARKE-DAVIS) 28 June 1991 (1991-06-28) the whole document	1-26

Into mation on patent family members

Internal Application No PCT/EP 00/06792

Patent document cited in search repo	rt	Publication date	Patent family memb r(s)	Publication date
WO 9641617	A	27-12-1996	IT MI951223 A CA 2224267 A EP 0833618 A	09-12-1996 27-12-1996 08-04-1998
EP 908177	Α	14-04-1999	BR 9802915 A	11-01-2000
WO 9723219	A	03-07-1997	FR 2742660 A AU 721949 B AU 1198397 A BG 102555 A BR 9612225 A CA 2242224 A CN 1207681 A EP 0868184 A HU 9904129 A JP 2000506500 T NO 982738 A PL 327567 A	27-06-1997 20-07-2000 17-07-1997 26-02-1999 13-07-1997 10-02-1999 07-10-1998 28-04-2000 30-05-2000 21-08-1998 21-12-1998
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FR 2656303	Α	28-06-1991	NONE	

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	(Form F		International Search Report where applicable, item 5 below.					
SANSYL001/MB International application No.	ACTION International filing date (day/month)	(Earlingt) Price						
		year) (camest) riic	ority Date (day/month/year)					
PCT/EP 00/06792	27/06/2000		28/06/1999					
Applicant								
SANOFI-SYNTHELABO								
This International Search Report has bee according to Article 18. A copy is being to			smitted to the applicant					
This International Search Report consists It is also accompanied by	of a total ofshe a copy of each prior art document ci							
1. Basis of the report								
 a. With regard to the language, the language in which it was filed, un 	international search was carried out less otherwise indicated under this ite	on the basis of the interna m.	tional application in the					
the international search w Authority (Rule 23.1(b)).	vas carried out on the basis of a trans	ation of the international a	application furnished to this					
b. With regard to any nucleotide ar was carried out on the basis of th	e sequence listing :	d in the international appli	cation, the international search					
	onal application in written form. ernational application in computer rea	dable form						
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	furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readble form.							
the statement that the sul	the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.							
the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished								
2. Certain claims were fou	ind unsearchable (See Box I).							
3. Unity of invention is lac	king (see Box II).							
4. With regard to the title,								
the text is approved as su	ubmitted by the applicant.							
the text has been establis	shed by this Authority to read as follow	rs:						
5. With regard to the abstract,								
TX the text is approved as su	ibmitted by the applicant.							
the text has been establis	shed, according to Rule 38.2(b), by the date of mailing of this international	s Authority as it appears i	n Box III. The applicant may, ments to this Authority.					
6. The figure of the drawings to be pub								
as suggested by the appl	icant.	[X None of the figures.					
because the applicant fai	ed to suggest a figure.	_						
because this figure better	characterizes th invention.							

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61K9/50 A61K9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

 $\begin{tabular}{ll} \begin{tabular}{ll} Minimum documentation searched (classification system followed by classification symbols) \\ IPC 7 & A61K \end{tabular}$

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal, CHEM ABS Data

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Х	WO 96 41617 A (APPLIED PHARMA RESEARCH) 27 December 1996 (1996-12-27) figure 4 claims 1,2,6,26,30-33	8-13,19, 21
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	_/	

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Date of the actual completion of the international search 11 December 2000	Date of mailing of the international search report 18/12/2000
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Ventura Amat, A

Internal Application No
PC 00/06792

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT								
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.						
	FR 2 656 303 A (PARKE-DAVIS) 28 June 1991 (1991-06-28) the whole document	1–26						
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Information patent family members

PC P 00/06792

Patent do cited in sea			Publication dat	Patent family member(s)	Publication date
WO 9641	.617	A	27-12-1996	IT MI951223 A CA 2224267 A EP 0833618 A	09-12-1996 27-12-1996 08-04-1998
EP 9081	.77	Α	14-04-1999	BR 9802915 A	11-01-2000
WO 9723	3219	A	03-07-1997	FR 2742660 A AU 721949 B AU 1198397 A BG 102555 A BR 9612225 A CA 2242224 A CN 1207681 A EP 0868184 A HU 9904129 A JP 2000506500 T NO 982738 A PL 327567 A	27-06-1997 20-07-2000 17-07-1997 26-02-1999 13-07-1997 10-02-1999 07-10-1998 28-04-2000 30-05-2000 21-08-1998 21-12-1998
GB 2185	i887	Α	05-08-1987	DE 3705074 A CH 671881 A	01-09-1988 13-10-1989
FR 2656	303	Α	28-06-1991	NONE	